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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,043	01/29/2004	Shingo Yamaguchi	042058	2574

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EXAMINER

PHAM, THOMAS K

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,043

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Thomas K. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-18, 20, 21 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 7, 19, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

First Action on the Merits

1. Claims 1-26 of U.S. Application 10/766,043 filed on 01/29/2004 are presented for examination.

Quotations of U.S. Code Title 35

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim Rejections - 35 USC § 112

6. Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

- The method steps are not apparently executed by the “tool determining methods”.
- Only steps in claims belong to “working condition setting unit” which is one of plural “units” constituting the “working control device” upon which the preamble - recited “method” is “based”.

Therefore, these “steps” not clearly seen to be contended as the “method steps”, only the working condition setting unit’s steps.

8. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

- The method steps are not apparently executed by the “tool determining methods”.
- Only steps in claims belong to “working condition setting unit” which is one of plural “units” constituting the “working control device” upon which the preamble - recited “method” is “based”.

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9. Therefore, these “steps” not clearly seen to be contended as the “method steps”, only the working condition setting unit’s steps.

Claim Rejections - 35 USC § 101

10. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claim 20 is rejected under 35 U.S.C. 101 as not being tangible since the executing steps of the claimed Machine can be implemented by software alone. For example, “obtaining configuration information”, “searching out a working case”, “determining the working conditions”, and “controlling a working machine” are just the functionalities of a “working control program”.

Claim 26 is rejected under 35 U.S.C. 101 as not being tangible since the executing steps of the claimed Machine can be implemented by software alone. For example, “determining a minimum tool diameter”, “determining a target time T”, “adding the tools in sequence”, “comparing the time”, and “determining the using tool ...” are just the functionalities of a “tool determining program”.

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Claim Rejections - 35 USC § 102

11. Claims 1-6, 8-18, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,772,038 (“Kadono”).

Regarding claim 1

Kadono teaches a working control device comprising:

- a configuration characteristic extraction unit obtaining configuration information about characteristics of a three-dimensional configuration from design data of an object workpiece (see Col. 2 lines 35-45);
- a working case storage unit storing working conditions, as a working case, of the working conducted in the past (see Col. 2 lines 45-48);
- a case searching unit searching out the working case from the working case storage unit on the basis of the configuration information (see Col. 2 lines 53-64);
- a working condition setting unit determining the working conditions based on the working case searched out by the case searching unit (see Col. 2 line 64 to Col. 3 line 4);
and
- a control unit controlling a working machine on the basis of the working conditions (see Col. 9 lines 33-43).

Regarding claim 20

Kadono teaches a working control program for making a computer execute steps of:

- obtaining configuration information about characteristics of a three-dimensional configuration from design data of an object workpiece (see Col. 2 lines 35-45);

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- searching out a working case on the basis of the configuration information (see Col. 2 lines 53-64) from a working case storage unit storing working conditions, as a working case, of the working conducted in the past (see Col. 2 lines 45-48);
- determining the working conditions based on the working case (see Col. 2 line 64 to Col. 3 line 4); and
- controlling a working machine on the basis of the working conditions (see Col. 9 lines 33-43).

Regarding claim 21

Kadono teaches a working control system comprising a working machine and a working control device for controlling the working machine, the working control device including:

- a configuration characteristic extraction unit obtaining configuration information about characteristics of a three-dimensional configuration from design data of an object workpiece (see Col. 2 lines 35-45);
- a working case storage unit storing working conditions, as a working case, of the working conducted in the past (see Col. 2 lines 45-48);
- a case searching unit searching out the working case from the working case storage unit on the basis of the configuration information (see Col. 2 lines 53-64);
- a working condition setting unit determining the working conditions based on the working case searched out by the case searching unit (see Col. 2 line 64 to Col. 3 line 4); and
- a control unit controlling a working machine on the basis of the working conditions (see Col. 9 lines 33-43).

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Regarding claim 2

Kadono teaches a judgment criterion storage unit stored with information serving as a judgment criterion for the working conditions (see Col. 8 lines 14-21), wherein the working condition setting unit determines the working conditions based on the information of the judgment criterion storage unit and on the working case searched out by the case searching unit (see Col. 8 lines 21-31).

Regarding claim 3

Kadono teaches a pre-working input unit accepting an input of information about the object workpiece (see Col. 5 lines 6-16), wherein the working condition setting unit determines the working conditions based on the information given from the pre-working input unit and on the design data (see Col. 3 lines 58-64).

Regarding claim 4

Kadono teaches a monitoring unit obtaining information of the working machine when the control unit controls based on the working conditions (see Col. 8 lines 51-63); and a working case registration unit having the working case storage unit stored with the working machine information obtained by the monitoring unit in a way that makes it as a working case mapping to the configuration information (see Col. 8 lines 63-67).

Regarding claim 5

Kadono teaches a monitoring unit obtaining information of the working machine when the control unit controls based on the working conditions (see Col. 8 lines 51-63); a working case registration unit having the working case storage unit stored with the working machine information obtained by the monitoring unit in a way that makes it as a working case mapping to

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the configuration information (see Col. 8 lines 63-67); and a post-working input unit accepting an input of information about whether the working is preferable or not, wherein the working case registration unit has the working case storage unit stored with the working case, corresponding to the information accepted by the post-working input unit (see Col. 9 lines 9-32).

Regarding claim 6

Kadono teaches wherein the configuration characteristic extraction unit divides a surface of the object workpiece represented by the design data into polygons, obtains coordinates of vertexes of these polygons as X-, Y- and Z-values in the case of being expressed by values in X-, Y- and Z-direction, obtains minimum and maximum X-values, minimum and maximum Y-values and minimum and maximum Z-values among all the vertexes, obtains a maximum X-axis directional length by subtracting the minimum X-value from the maximum X-value, obtains a maximum Y-axis directional length by subtracting the minimum Y-value from the maximum Y-value, and obtains a maximum Z-axis directional length by subtracting the minimum Z-value from the maximum Z-value (see Col. 6 lines 40-65).

Regarding claim 8

Kadono teaches wherein the configuration characteristic extraction unit judges whether a normal line of the polygon is parallel with a working axis or not, and classifies the polygon exhibiting the parallelism according to a value in the Z-axis direction (see Col. 7 lines 1-6).

Regarding claim 9

Kadono teaches wherein the configuration characteristic extraction unit extracts concave shape parts of the object workpiece represented by the design data, and obtains a concave shape radius dimension having a minimum radius in the concave shape parts (see Col. 7 lines 6-12).

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Regarding claim 10

Kadono teaches wherein the configuration characteristic extraction unit extracts concave shape parts of the object workpiece represented by the design data, classifies the concave shape parts according to a radius dimension (see Col. 7 lines 6-12), obtains an areal size of the concave shape part according to this radius dimension, and obtains a radius dimension having a maximum areal size (see Col. 8 lines 21-31).

Regarding claim 11

Kadono teaches wherein the configuration characteristic extraction unit divides a surface of the object workpiece represented by the design data into polygons, compares, in the case of representing the coordinates of the vertexes of these polygons in values in the X- Y- and Z- directions, Z-axis values of the vertexes of the polygons excluding the polygons having fitting surfaces to the working machine and the polygons abutting on these fitting surfaces, and obtains a minimum Z-axis value as a maximum depth of the object workpiece (see Col. 6 lines 40-65).

Regarding claim 12

Kadono teaches wherein the configuration characteristic extraction unit divides a surface of the object workpiece represented by the design data into polygons (see Col. 6 lines 55-65), judges whether or not a normal line of the polygon is parallel with the working axis, classifies the polygons into the polygons exhibiting the parallelism and the polygons exhibiting no parallelism (see Col. 7 lines 1-6), obtains a working range by grouping the polygons including shared edges with respect to each classification, and obtains the edges, as a working range boundary line, which are not shared with other polygons in each group (see Col. 7 lines 40-50).

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Regarding claim 13

Kadono teaches wherein the configuration characteristic extraction unit obtains blank dimensions by adding a working margin in the working case searched out by the case searching unit to the maximum X-axis directional length, the maximum Y-axis directional length and the maximum Z-axis directional length (see Col. 3 lines 9-23).

Regarding claim 14

Kadono teaches a monitoring unit obtaining information of the working machine when the control unit performs the control based on the working conditions (see Col. 8 lines 51-63); a post-working input unit accepting an input of information about whether a result of the working is preferable or not when performing the control (see Col. 9 lines 9-32); and a working case registration unit having the working case storage unit stored with the working machine information obtained by the monitoring unit and information about whether a result of the working is preferable or not in a way that makes it as a working case mapping to the configuration information (see Col. 8 lines 63-67), wherein in case the result of the working in the working case searched out by the case searching unit is preferable, the working condition setting unit determines the working conditions based on the working case (see Col. 8 lines 21-31).

Regarding claim 15

Kadono teaches wherein the case searching unit searches the working case database by using the configuration information obtained from the configuration characteristic extraction unit as a search key, and thus searches out a working case mapping to the configuration information falling within a predetermined range (see Col. 8 lines 14-31).

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Regarding claim 16

Kadono teaches wherein the working machine is a cutting machine, the monitoring unit measures a main shaft load state of the working machine, and the control unit, in case the measured main shaft load is out of a predetermined range, adjusts a feeding speed of the cutting machine so as to fall within the predetermined range (see Col. 8 lines 51-67).

Regarding claim 17

Kadono teaches wherein the working machine is a cutting machine, the monitoring unit measures a main shaft load state of the working machine, and the control unit, in case the measured main shaft load is out of a predetermined range, adjusts a the number of revolutions of the main shaft of the cutting machine so as to fall within the predetermined range (see Col. 9 lines 9-32).

Regarding claim 18

Kadono teaches wherein in the case of using a plurality of tools, the working condition setting unit compares a cutting residual quantity of the tool to be used ahead with an allowable range of the tool to be used next, and, if the cutting residual quantity of the tool to be used ahead exceeds the allowable range of the next tool, sets so that the cutting residual quantity of the tool to be used head falls within the allowable range of the next tool by changing, adding or deleting the tool (see Col. 9 lines 44-58).

Allowable Subject Matter

12. Claim 7, 19, 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday - Thursday from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Pham
Patent Examiner

A handwritten signature in black ink, appearing to read 'Tom Pham', with a long, sweeping horizontal line extending to the right.

February 6, 2006